

Seconda Contribuzione morfologia e sistematica dei Selachi. Del Prof. Pietro Pavesi. (Genoa, 1878.)

IN 1874 Prof. Pavesi, of Pavia, described in the *Annali del Museo Civico* of Genoa a shark which had been captured at Lerici, in the Gulf of Spezia, in 1871. It belonged to the genus *Selache*, but, from a peculiarity in the conformation of the rostrum, Pavesi considered it to be a distinct species from the great basking shark, *Selache maxima*, and named it *Selache rostrata*. The specific difference of this specimen has, however, been called in question by Canestrini, Steenstrup, and other ichthyologists, who were inclined to regard it as a monstrous form of the *Selache maxima*. In June, 1877, a male shark, also belonging to the genus *Selache*, was caught in the harbour of Vado, near Savona, and, being examined by Prof. Pavesi, forms the subject of this second communication to the *Annali del Museo Civico*, vol. xii. Its length was between ten and eleven feet. It had been eviscerated before coming into his possession, so that the memoir does not give an account of the abdominal viscera, but the external characters, the skeleton, the pectinated appendages, the brain and cranial nerves, and the vascular system, are described. The shark from Vado is almost identical, says the author, with that previously caught at Lerici. He then carefully reconsiders the systematic position of these specimens. He is strongly of opinion that the view that the specimen originally described was a monstrous form of *Selache maxima* is quite untenable. But his examination of this second specimen has convinced him that these sharks can no longer be regarded as a distinct species, and that they are young examples of the great basking shark, *Selache maxima*. The memoir is illustrated by a lithographic plate and by twenty-seven woodcuts.

Das Leben. Naturwissenschaftliche Entwicklung des organischen Seelen- und Geisteslebens. Von Philipp Spiller. (Berlin: Stühr'sche Buchhandlung, 1878.)

THIS work may be said to be but an enlarged reproduction of a division of an earlier and more important work: "Die Urkraft des Weltalls nach ihrem Wesen und Wirken auf allen Naturgebieten," by the same author. Prof. Spiller, whose death it was our painful duty to announce last week, is the originator and founder of a philosophical theory on the first cause of all things. According to his view the world-ether is the architect of the universe as well as the fundamental cause of gravitation. In his works, particularly in the one just mentioned, the learned professor treats this world-ether theory in a most masterly manner, and whatever view we may take as to the correctness of his views—a question which we certainly do not wish to decide—it is only justice to point out that his explanations and definitions are all written in such a spirit of firm conviction of the truth of his theory, that an attentive reader cannot refuse his admiration and respect.

LETTERS TO THE EDITOR

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts. No notice is taken of anonymous communications.]

[The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to ensure the appearance even of communications containing interesting and novel facts.]

Leibnitz's Mathematics

I UNDERSTOOD Dr. Ingleby to say that he was prepared to make good his assertions, and to respond to Mr. Nelson's "call" as soon as I retracted, or justified, my former statement.

In 1871 Dr. Ingleby said it was exactly twenty years since the last vestige of presumption against the fair fame of Leibnitz was "obliterated."

Dr. Ingleby is evidently unacquainted with the work of Dr.

Sloman (Leipzig, 1858; in English, Macmillan, 1860), else he would not have spoken of the "last vestige of presumption."

Kant's opinion of Leibnitz, which is far more favourable than that of Dr. Sloman, compares him to chemists "who gave themselves out to be possessed of secrets, when they had really nothing but a persuasion and a conviction of their capacity for acquiring such." This verdict, from a true metaphysician, ought to have much weight with Dr. Ingleby. P. G. TAIT

Guthrie's "Physics"

SOME weeks ago (p. 311) you published in NATURE a review by Prof. Maxwell of a little book of mine on Practical Physics. It is not my intention to complain in any way of the review, partly because it would be a profitless trespass on your space, but mainly because, while the tone is unfavourable, the instances adduced by the reviewer go a long way to confute his own statements in all cases where there is any connection between the two.

Some well-meaning friend has composed and sent me a copy of the inclosed. There appear to be various opinions as to the authorship. It has even been suggested that Prof. Maxwell, with that sense of humour for which he is so esteemed, and with a pardonable love of mystification, is himself the author.

February 24 FREDK. GUTHRIE

REMONSTRANCE TO A RESPECTED DADDIE ANENT HIS LOSS OF TEMPER

Suggested by Prof. CLERK MAXWELL'S review of GUTHRIE'S "PHYSICS"

WORRY, through duties Academic,

It might ha'e been

That made ye write your last polemic

Sae unco keen :

Or intellectual indigestion

O' mental meat,

Striving in vain to solve some question

Fro' "Maxwell's Heat."

Mayhap that mighty brain, in gliding

Fro' space tae space,

Met wi' anither, an' collidin',

Not face tae face.

But rather crookedly, in fallin'

Wi' gentle list,

Gat what there is nae help fro' callin'

An ugly twist.

If 'twas your "demon" led ye blindly,

Ye should na thank him,

But gripe him by the lug and kindly

But soundly spank him.

Sae, stern but patronising daddie !

Don't ta'e't amiss,

If a puir castigated laddie

Observes just this :—

Ye 've gat a braw new Lab'ratory

Wi' a' the gears,

Fro' which, the warld is unco sorry,

'Maist naught appears.

A weel-bred dog, yoursel' must feel,

Should seldom bark.

Just put your fore paws tae the wheel,

An' do some Wark.

$$d \sqrt{\frac{m}{n}}$$

Unscientific Art

IN *Punch's* series of cartoons, "the man at the wheel" turns up now and again. The most recent example is that of date February 22: John Bull and Punch are strenuously holding a steering-wheel between them, in a tempestuous scene. I have a second example before me in the series of cartoons of Beaconsfield recently issued, No. 61: Disraeli has one hand on a steering-wheel, while the other holds a pistol directed to the powder magazine below; and he threatens to blow up the ship if Gladstone and Bright (climbing over the bulwarks behind) step on board. Other cases will be remembered. Now (neglecting here the political meaning of the pictures) these steering-wheels are wonderful productions, and how they serve for steering is a mystery. The wonder, remarked on by St. James, of "a very small

helm" turning great ships, is here outdone. The wheel stands, in all simplicity, between two uprights, or a slitted upright, fixed on the deck (or a raised platform); there is nothing behind or before the outer surfaces of the uprights. But an essential part of ordinary steering-wheels is the drum or axle extending generally a little way behind (and covered, it may be), on which are wound ropes or chains passing round pulleys to the tiller. A more modern form well known is a screw shaft with levers, &c. The omission in question in these cartoons leaves the scientific mind decidedly "at sea," and with little confidence in the steersman. I suspect the artistic type of mind is rather apt to neglect such details.

It is remarkable, indeed, how many matters belonging to simple observation escape notice by artists. I may perhaps be allowed to note a few points which have occurred to me in glancing over *Punch* from November to the present time, and the three books of cartoons of the *Punch* series.

The electric machine sometimes makes its appearance in *Punch*. In No. 53 of the Beaconsfield cartoons, that gentleman (as a professor) is arranging a circuit between an aristocrat and a working man for a shock. The electric machine behind is evidently meant for one of the Ramsden type, but the brass-work with points to collect the electricity is wanting, and the glass plate seems to have great concealing power. Again, the clever and fantastic sketch at the beginning of the Almanack shows an electrical machine of quite indescribable type, unless it be a Holtz, but it defies all mechanical conception. Perhaps it is not allowable to apply scientific rules to the brilliant insanity of such drawings, but I think there should be more basis of real existence than this one presents.

From many pictures we might be led to infer that left-handedness is much more common than it really is. Thus, a *pince-nez* is held in the left hand by Mr. Bright (in No. 19 of the Bright cartoons), by a church dignitary speaking to his daughters (*Punch*, December 21, p. 282), and by an old gentleman who receives a letter on the road on a snowy day (*Punch*, February 1, p. 39). In the Almanack (p. 5) a workman holds a cup in his left hand and a saucer in his right. Reins are frequently held in the right hand (which, I understand, is wrong)—one example is the cartoon of *Punch*, December 14, "Post Equitem." If something might be said for these cases, it is difficult to see how an artist can be justified in putting a quill pen behind the left ear, as in the case of Gladstone, when meeting Bismarck (last of Gladstone series), unless, indeed, the right ear were already occupied with one (which is not here the case). A similar remark seems applicable to a caricature of Ruskin by Sambourne (*Punch*, December 7, p. 254).

In an ingenious sketch (*Punch*, February 1, p. 37), in which a complex pocket-knife or sort of *multum in parvo* is made to take the aspect of a formidable animal, the spiral of the corkscrew turns the wrong way.

In one of the Bright cartoons (No. 33), that gentleman appears in court costume before a mirror which slants away from him upwards, but the image, I think, hardly corresponds to this.

One word more, and of a somewhat different order of criticism. Heat of certain intensities and in certain circumstances may, of course, be very unpleasant. But, as we have had good reason to know lately, heat may be very welcome and agreeable. Therefore I venture to indict the cartoon of *Punch*, February 15, "Hot water, sir!" as flagrantly at fault. Beaconsfield is bringing in the morning's hot water to John Bull in bed. In the session of 1879 John Bull may very likely find himself "in hot water;" but in the connection to which the picture refers, hot water is a pleasant mitigation to the inevitable discomfort of washing. So John Bull's horrified look could not possibly refer to that. If he were being awoken, as I have been, in a hydro-pathic establishment, about 6 A.M., by a fiend in human shape, who showed a cynical determination to pack him in a cold wet sheet, the man's implements might arouse some horror. In the Beaconsfield cartoon, No. 90, "The Turkish Bath," the metaphor is, of course, all right: "You made it so confoundedly hot for me!"

Some of the foregoing are little points, but they prove this much, that there is room for improvement among artists of this class as regards correctness of observation and strict fidelity to fact.

A. B. M.

Intellect in Brutes

IN Mr. Nicols' instance of intellect in brutes (*NATURE*, vol. xix. p. 365) he tells us that a plumber "had on several occasions

been called in to examine into the cause of leakage of water-pipes under the flooring of houses," and then records a *single instance* of rats having gnawed through a pipe. It is important to know whether the plumber knew of another case: for the idea at once suggests itself that the pipe had cracked through frost, and the rats then discovering the leakage gnawed it to get more water.

It has always seemed to me that brute reasoning is always *practical* but never *abstract*. They do wonderful things suggested by the objective fact before them; but, I think, never go beyond it. Thus, a dog left in a room alone rang the bell to fetch the servant. Had not the dog been taught to ring the bell (which on inquiry proved to have been the case) it would have been abstract reasoning, but it was only practical. The Arctic fox—too wary to be shot like the first who took a bait tied to a string, which was attached to the trigger of a gun—would dive under the snow and so pull the bait down below the line of fire. This is purely practical reasoning; but had the fox pulled the string first out of the line of fire *in order* to discharge the gun, and *then* to get the bait, *that* would have been abstract reasoning which he could not attain to.

This practical reasoning is just what young people do, before they can reflect. A boy the other day found the straps of his skates frozen. The fact only suggested *cutting* them. Not one of his schoolfellows reflected upon the abstract fact that the ice would melt if he sat upon his foot a few minutes. Hence brutes and boys are just alike, in that nothing occurs to either beyond what the *immediate* fact before them may suggest. The one kind I call purely *practical* reasoning, which both have; the other, *abstract*, which brutes *never* acquire; but the boy *will* as his intelligence develops.

GEORGE HENSLOW

IN Central Park one very hot day my attention was drawn to the conduct of an elephant which had been placed in an inclosure in the open air.

On the ground was a large heap of newly-mown grass, which the sagacious animal was taking up by the trunkfull, and laying carefully upon his sun-heated back. He continued the operation until his back was *completely thatched*, when he remained quiet, apparently enjoying the result of his ingenuity.

It seems to me that *instinct* should have prompted the elephant to eat the grass, and that it was *reason* which caused him to use it for the purpose of diminishing the effect of the sun's rays.

New York, February 8

JAMES J. FURNISS

Bees' Stings

WILL you allow me, as possessor of a couple of score of hives, to say a word respecting the discussion in your columns as to the effect on *Apis mellifica* of the loss of its sting and appendages.

As far as my observations go, the bee is not seriously injured by the loss, for though imprisoned and watched for some hours, as soon as released it flies back to its hive, and apparently resumes its work as before. However, any one sufficiently painstaking can settle the question finally by marking some such bees, and watching for their departure, and return laden with honey or pollen.

May I ask if any of your readers have yet determined the identity of bee poison and formic acid. The former is said, on exposure to the air, to solidify to a white crystalline mass, but formic acid requires, I believe, a temperature of 0° C. to effect this modification.

J. P. JACKSON

Bull's Mill Apiary, Hertford, February 18

P. LE NEVE FOSTER

A VERY numerous body of friends will have heard with regret of the sudden death of Mr. Le Neve Foster, the secretary of the Society of Arts. Though not himself an original worker in science, there were few men better known in scientific circles, or so universally liked where he was known, as Mr. Foster. His connection with the Society of Arts threw him amongst men working in nearly all lines of research, and there are probably few recent instances of the practical application of any new scientific discovery to industrial purposes in which he did not take some interest. Coming up to London with a fellowship from Trinity Hall, he was called to the bar in 1836, and practised for some fifteen or sixteen years